NASA Emergency Notification and Accountability System (ENS)

Statement of Work (SOW)

Contents

1 General Capabilities

1.1 Hosted Service

The ENS shall be provided to NASA as a service. The equipment used to provide the service shall be operated and maintained by the contractor and in the contractor's facilities.

1.2 Availability

The ENS shall be available to NASA 24 hours per day, seven days a week.

1.3 Redundancy

The ENS shall ensure continuous availability by providing an automatic failover service, including data storage, at a geographically separate location. The automatic failover service shall support all operations of the ENS including real-time data capture, integration support and reporting.

1.4 System Usage

1.4.1 Center Usage

The ENS shall enable designated NASA centers and facilities to use the system independently of other centers. Groups and pre-established notifications created by a NASA center shall only be available to personnel with access in the ENS to that center.

1.4.2 Agency Usage

The ENS shall enable agency-level authorized users to view information, create groups, and initiate alerts related to all end-users in the NASA ENS system.

1.4.3 Cross-Center Support

The ENS shall enable authorized personnel to view information and initiate alerts related to multiple centers.

1.5 Scope

1.5.1 Capacity

The ENS shall provide notification and accountability capability to no fewer than 90,000 end-users, each with multiple notification devices.

1.5.2 Personnel

The ENS shall provide notification and accountability capability to NASA employees, badged personnel and visitors.

1.6 Consistent Capabilities

The ENS shall provide consistent notification and accountability capability to all NASA centers and facilities.

1.7 System Access

The ENS shall require personnel to have NASA-authorized access in order to gain access to the NASA ENS.

2 Data

2.1 Ownership, Privacy and Data Protection

The ENS shall protect the confidentiality, integrity, and availability of NASA electronic information and IT resources and protect NASA electronic information from unauthorized disclosure.

2.2 Storage Capacity

2.2.1 End-User Entries

The ENS shall be capable of storing a minimum of 90,000 distinct end-user entries.

2.2.2 Data Fields

The ENS shall be capable of storing, for each end-user entry, the following fields:

- First Name
- Last Name
- Category
- Cell Phone (work)
- Cell Phone (personal)
- Texting Device (work)
- Texting Device (personal)
- Center
- Employer
- Home Email Address
- Home Phone
- Org Code
- Residential City
- Residential State
- Residential Street
- Residential Zip Code
- Supervisor's Name
- NASA Uniform Universal Person Identification Code (UUPIC)

- Work Building
- Work Email Address
- Work Phone
- Work Room
- Contract number

The ENS shall also allow NASA to add and populate up to 20 additional data fields. The ENS shall allow both text fields and numeric fields.

2.3 Upload Failure Action

The ENS shall maintain the most recent complete set of data that was successfully uploaded in the event of a failed data upload.

2.4 Manual End-User Entries

The ENS shall enable system operators to manually insert end-user entries into the ENS. Each such entry will include an expiration date and the ENS shall automatically delete the end-user entry when the expiration date has transpired.

3 Notification

3.1 Location

The ENS shall notify affected end-users, regardless of the end-user's physical location, whether on-site (at a NASA facility) or off-site.

3.2 Entire Population

The ENS shall be able to notify the entire population of NASA entries via a single alert.

3.3 Groups

3.3.1 Manual Groups

The ENS shall enable system operators to create groups manually by choosing personnel entries in the system or uploading a file listing the key identifier of each end-user that is to be added to the group.

3.3.2 Criteria-based Target Groups

The ENS shall enable criteria-based targeting of notifications based upon the end-user data in the established NASA data fields. The ENS shall enable operators to use multiple fields and multiple characteristics (e.g. "contain," "equal to," "not equal to," "starts with," etc.) to define the notification target groups.

3.3.3 Notification-Accountability Integration Groups

The ENS shall enable targeting of notification messages to only the personnel who have not successfully responded to a previous notification message.

3.3.4 Nesting Groups

The ENS shall allow groups to include both individuals and other groups.

3.3.5 Grouping Capacity

The ENS shall be able to maintain an unlimited number of pre-established groups.

3.3.6 Grouping Maintenance

The ENS shall recreate--or maintain while incorporating the data changes—all established groups that are based on data fields automatically after each upload of the NASA data.

3.3.7 Assignment to Multiple Groups

The ENS shall allow end-users to be assigned to multiple groups simultaneously. The only limit to the number of groups to which an end-user may be assigned is the number of NASA groups that exist in the ENS.

3.3.8 Grouping Duplication

The ENS shall prevent end-users from receiving duplicative messages when the end-user is a member of multiple groups that are in the target group of a single notification message.

3.4 Deliveries

3.4.1 Successful Delivery Action

The ENS shall record successful delivery of message, and discontinue attempts to reach the end-user upon successful delivery. A “successful delivery” is defined as one in which the system documents delivery of a message to the intended address.

3.4.2 Delivery Means

The ENS shall support delivery of notifications via all of the following means:

- E-mail
- Telephony calls
- Texting
- VoIP phone display/speaker messaging
- Instant Messaging
- Workstation Pop-up messages
- Website messaging

3.4.3 All-Devices Capability

The ENS shall be able to send alerts to an end-user's complete contact path. The "complete contact path" shall include all contact information in the ENS associated with the end-user.

3.4.4 Consistency Across all Devices

The ENS shall launch and manage all device communication channels simultaneously, providing a consistent alert across all delivery devices.

3.5 Notification Capabilities

3.5.1 Notification Concurrence Capability

The ENS shall support multiple concurrent notifications.

3.5.2 Appearance

The ENS shall disseminate all notifications in a manner that gives recipients confidence that the message comes from an official NASA source and is not spam or a phishing attack. The ENS shall allow NASA to specify how the source of the message appears, including aliases.

3.5.3 Device Choice

The ENS shall allow system operators to choose which delivery devices will be used for each notification and allow the operator to select option for automated or voice recorded messages.

3.5.4 All-Device Communication

The ENS shall allow system operators to simultaneously send notifications to all contact devices listed for each end-user.

3.5.5 Notification Order

The ENS shall allow system operators to specify the order of the devices used for communication.

3.5.6 Establish Contact Attempts Limit

The ENS shall enable the system operator to determine the number of attempts the ENS makes to notify each end-user.

3.5.7 Voicemail Option

The ENS shall allow system operators to specify whether the system will leave voicemail messages associated with each notification.

3.5.8 Message Repetition

The ENS shall include the option to repeat a telephone notification message after the message has been provided to the end-user.

3.5.9 Message Cessation

The ENS shall provide system operators with the ability to halt all initiated notifications.

3.6 Notification Initiation

The ENS shall support alert initiation via the ENS web management console.

3.7 Ad-Hoc Notifications Creation

The ENS shall allow notifications to be created in real time.

3.8 Pre-established Notifications

3.8.1 Availability

The ENS shall allow notifications to be predefined and stored in the ENS for later dissemination.

3.8.2 Variability

The ENS shall allow pre-established notifications in which the system operator can specify certain characteristics and data at the time of usage.

3.8.3 Quantity

The ENS shall allow for an unlimited number of pre-established notifications.

3.8.4 Notification Selection

The ENS shall allow system operators to select pre-established notifications from a list. Additionally, the ENS shall have a search feature for system operators to find a pre-established notification based on key words.

3.9 RSS Capability

The ENS shall support automatic upload of notification messages via Really Simple Syndication (RSS) feeds.

4 Accountability

4.1 Two-Way Functionality

The ENS shall provide functionality to enable two-way communication capability to account for and to track the status of all affected individuals.

4.2 Response Devices

The ENS shall enable users to respond to notifications via the same device in which the notification is received. The devices from which an employee can respond include telephone, text message, and e-mail.

4.3 Response Integration

The ENS shall integrate all end-user responses into the ENS, regardless of the device used to respond to the notification.

4.4 Multiple Questions

The ENS shall support multiple questions in a single notification message.

4.5 Question Formats

The ENS shall support multiple-choice questions as well as free-form text questions. The ENS shall allow differently formatted questions to be included within a single notification.

4.6 Response Input Capability

The ENS shall allow system operators to input end-user response information into the system. The ENS shall integrate this system operator-provided information with all other response information associated with the notification. The ENS shall identify that this data was supplied by a system operator instead of the end-user.

4.7 Response Receipt and Edit Capability

The ENS shall have the ability to provide a confirmation to the end-user when the end-user responds to a notification via a cellular, telephone, text or e-mail. This confirmation will also provide the end-user with the option to change their response if their initial response was incorrect.

5 Management Console

5.1 Web-Based Interface

The ENS shall be accessible for use by NASA-authorized personnel via a web-based interface.

5.2 System Operator Access

The ENS shall allow system operators to trigger alerts from any device including phones, smartphones (via mobile applications), tablets, and computer (via the latest versions of the internet browsers Internet Explorer, Mozilla Firefox, Chrome, and Safari).

5.3 System Roles

The ENS shall provide role-based access, operation, and reporting. The ENS shall allow an unlimited number of personnel to have system roles. Each system role will be associated with the centers to which the personnel have been granted access.

5.3.1 Custom Roles Available

The ENS shall enable NASA customization of available roles for system operators.

5.3.2 Simultaneous Roles

The ENS shall provide the ability for one system operator to be assigned multiple roles.

5.3.3 Report Viewing Role

The ENS shall provide a read-only role for viewing accountability information and shall ensure that persons are only able to view the information that they have been granted access to view.

5.4 Deletion Capability

The ENS shall allow system operators to delete pre-defined messages, distribution lists, scenarios, alerts, groups, and other data from the system for their center when the data is no longer needed.

5.5 Web Usability

The ENS shall meet industry standards for web usability.

6 Reporting

6.1 Accountability Reporting

6.1.1 Real-time Visibility

The ENS shall provide real-time reporting on the status and safety of all end-users as reported by the end-users.

6.1.2 Reporting Breakdowns

The ENS shall provide real-time reports that enable filtering based on the data populated in a field.

6.1.3 Report Layout

The ENS's report layout shall allow system operators to sort by any data field and exclude non-critical data fields for optimum assessment.

6.1.4 Report Access

The ENS shall provide role-based login security, enabling persons in different roles to access different reports, while ensuring that persons are only able to view the information that they have a need to view.

6.1.5 End-user Categorization

The ENS shall provide reports that categorize end-users based upon their responses to questions. Categorizations will be customized by NASA.

6.2 Notification Reporting

6.2.1 Response Options

The ENS shall enable notification recipients to be presented with multiple response options for selection and acknowledgement on all personal communication devices.

6.2.2 Integration of Notification Responses

The ENS shall integrate all end-user responses within the system, regardless of the communication device used to respond.

6.2.3 Real-time Feedback

The ENS shall track recipient feedback in real-time. The ENS shall provide system operators the ability to view feedback in real-time as information is being provided to the system by end-users without having to refresh the browser.

6.3 System Notification Logging

The ENS shall record contact attempts and provide that information captured for reporting.

6.4 System Usage Archiving

The ENS shall archive system information for a period of at least one year. Information to be archived includes every message sent through the ENS, all data related to message delivery—including delivery attempts--and end-user responses.

6.5 Output Capabilities

6.5.1 Output to a Microsoft Excel File

The ENS reports shall be capable of being saved in a format that can be read by Microsoft Excel.

6.5.2 Output to a PDF File

The ENS reports shall be capable of being saved in Portable Document File (PDF) format.

6.5.3 Output to a Printers

The ENS reports shall be in a printer-friendly format.

7 Metrics

7.1 Pre-Established Notifications

The ENS shall provide the ability to send pre-established notifications in a maximum of four steps, once a system operator is logged into the system. A step here is equivalent to the click of a mouse button.

7.2 Ad-Hoc Notifications

The ENS shall provide the ability to draft ad-hoc notifications in a maximum of seven steps, once a system operator is logged into the system.

7.3 Notification Attempts

7.3.1 Text-Based Attempts

The ENS shall support a minimum of 10,000 text-based message attempts within five minutes; 30,000 text-based messages within fifteen minutes; 60,000 text-based messages within 30 minutes; and 90,000 text-based messages within 45 minutes.

7.3.2 Telephone Attempts

The ENS shall support a minimum of 10,000 voice notification attempts within 10 minutes; 30,000 voice notification attempts within 30 minutes; 60,000 voice notification attempts within 60 minutes; and 90,000 voice notification attempts within 90 minutes.

8 Support, Training, and Maintenance

8.1 Support

8.1.1 System Set-up Support

The ENS shall provide technical support to set up the initial implementation of the ENS at all NASA centers and facilities. This initial setup of the system includes group creation, pre-established alert creation, system roles creation, data source linkage, and system security setup.

8.1.2 System Usage Support

The ENS shall provide 24/7 help desk support to address system problems, issues, or questions.

8.2 Training

The ENS shall provide customer and system specific training. Following initial training, system operators will understand system operator roles, how to create activation scenarios, message targeting, activation tracking, and report generation.

8.3 System Maintenance

8.3.1 Basic Vendor Support

The ENS shall utilize vendor-supported hardware, operating system software, and other software that supports the ENS. Hardware and software will be updated as needed to remain under vendor maintenance

8.3.2 Patching

The ENS shall ensure that all hardware and software utilized is updated with vendor-provided patches within 3 days of release for emergency patches and 2 weeks of release for non-emergency patches, in order to maintain system security and stability.

8.3.3 System Robustness

The ENS shall be sufficiently robust to ensure availability even during times of maintenance and patching.

9 Compliance

9.1 508 Compliance

The ENS shall provide Section 508 compliant messages, including voice and text notifications. The ENS shall deliver messages in formats including but not limited to TTD/TTY/VRS. The ENS management console shall also be Section 508 compliant.

9.2 NIST Compliance

The ENS shall have sufficient security implementation to satisfy the NIST 800-53 rev 3 security controls of a FIPS 199 Moderate Impact information system and provide a NIST 800-18 rev 1 System Security Plan prior to contract awarding.

9.3 NASA STD 2804 & 2805 Compliance

The ENS shall support access from desktops that comply with NASA STD 2804 and NASA STD 2805.

9.4 E-Authentication

The ENS shall support HSPD-12 and NIST 800-63 requirements for two-factor authentication of moderate risk systems accessed remotely by the use of Security Access Markup Language (SAML)-based authentication to NASA's eAuthentication service.

10 NASA Integration

The ENS contractor will provide the support necessary to aid NASA in the preparation and implementation of the required data integration. NASA will require the vendor to support the following integrations:

Integration	Name	Source	Destination	Integration Pattern
1	User Account Provisioning (Roles/Permissions)	NASA	ENS	EDA
2	End User Identity and Contact Information	NASA	ENS	EDA

Integration Pattern

EDA - Event Driven Architecture: In this pattern, the source system publishes a transaction or data store to the destination system and receives confirmation. This is asynchronous and timeliness is dictated by functional requirements.

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Functional Requirements

NASA has identified the following functional requirements for each of the anticipated integrations listed above:

1. User Account Provisioning
   a. The ability to add, change, activate, and deactivate user accounts at anytime in an event based manner that provides an application level receipt to the source system.
   b. The ability to send a single account or multiple accounts (one or many) in a single integration event.
   c. The ability to provide multiple permissions (groups/role) per account.
2. End User Identity and Contact Information
   a. The ability to add, change, and delete end user identity information at anytime in an event based manner that provides an application level receipt to the source system.
   b. The ability to send a single identity or multiple identity records (one or many) in a single integration event.

Technical Requirements

The vendor must be able to support at least one of the following protocols in support of the application integration:

1. SOAP
2. REST
3. JMS

The vendor must be able to support integration with other applications via HTTPS.

Security Requirements

All integration data will be secured via system / network level encryption and application level encryption per Privacy Act Information requirements. All data in transmission must be secured via HTTPS (TLS).

Landscape and Infrastructure Requirements

The contractor must provide three (3) separate environments to support development, user acceptance, and production activities. The development and user acceptance environments may be logically separated; however, the Agency prefers the production environment to be logically and physically separate from any development or user acceptance environments.